

An Interactive Session

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An Interactive session

```
Ixplus> athena.py -i AnalysisSkeleton.py
athena> include ("PyAnalysisCore/InitPyAnalysisCore.py")
athena> theApp.initialize()                      initialization
athena> theApp.algorithms()                     list all algorithms
athena> AnalysisSkeleton.properties()          list alg properties
athena> AnalysisSkeleton.JetPtCut = 15000.0   reset cut
athena> AnalysisSkeleton.properties()
athena> theApp.run(20)                           run 20 events
athena> histSvc = theApp.histSvc()              get histo service
athena> histSvc.dump()                         list all histograms
athena> Mjj = histSvc.retrieve('/stat/jets/jet_pt')
athena> Mjj.mean()
athena> Mjj.rms()
```

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```
athena> from AidaProxy import *          access to tools (fitting)
athena> from rootPlotter2 import *        AIDA to ROOT
athena> plotter = RootPlotter()
athena> plotter.plot (Mjj)
athena> fitter = Fitter("Chi2","lcg_minuit")      Fitting
athena> fitParams = std.vector(double)()
athena> fitParams.push_back(2.0)
athena> fitParams.push_back(80000.0)
athena> fitParams.push_back(10000.0)
athena> gaussian = Function("G")
athena> gaussian.setParameters(fitParams)
athena> fitResult = fitter.fit(Mjj,gaussian)
athena> if fitResult == None:
athena>     raise "Single gaussian chi2 fit failed"
```

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```
athena> parameterNames = fitResult.fittedParameterNames()
athena> parameters = fitResult.fittedParameters()
athena> errors = fitResult.errors()
athena> for i in range(0,len(par)):
athena>     print parameterNames[i] + " = " + str(parameters[i]) + "
+/- " + str(errors[i])
athena> plotter.plot(gaussian, "S")
athena> import ROOT
athena> plot("ParticleJetContainer#ParticleJetContainer","$x.pt()",nEvent=5)
athena> ntupleSvc = theApp.ntupleSvc() ← available in next version of Gaudi
Athena> ...
athena> theApp.exit()
lxplus>
```

An Interactive Session - continue

- You can put your interactive commands in a file and execute it on the Athena prompt
 - The file `MyAnalysis.py` contains:

```
from AidaProxy import *
from rootPlotter2 import *
Import ROOT
theApp.initialize()
```
 - Then, on the interactive athena prompt:
`athena> execfile ("MyAnalysis.py")`

An Interactive Session - continue

- It is recommended that you start your analysis an ATHENA algorithm such as the AnalysisSkeleton, where you implement some pre-defined histograms and ntuples
- In an interactive session, you can access those histograms and ntuples. Further, you can also define and fill new histograms on the fly
- It is also possible to call C++ class from the athena prompt
- In an interactive session, you still have access to the full ROOT machinery through PyROOT.